

WHAT IS CLAIMED IS:

1. A signal generator, comprising:
  - a voltage controlled oscillation circuit;
  - 5 a control voltage input terminal for inputting an external control voltage for determining a frequency of an oscillation signal;
  - a frequency divider circuit for frequency-dividing an oscillation signal output from the voltage controlled oscillation circuit; and
  - 10 a frequency divided signal output terminal for outputting a frequency divided signal output from the frequency divider circuit.
- 15 2. The signal generator according to claim 1, further comprising a buffer amplifier which couples the oscillation signal output of the voltage controlled oscillator circuit to an input of the frequency divider circuit.
- 20 3. The signal generator according to claim 2, wherein the buffer amplifier has a balanced input and an unbalanced output.
4. The signal generator according to claim 2, wherein 25 the buffer amplifier is a common emitter transistor amplifier.
5. The signal generator according to claim 1, wherein

the voltage controlled oscillation circuit and the frequency divider circuit are arranged in an integrated circuit, and wherein the integrated circuit is provided with the control voltage input terminal and the frequency division signal 5 output terminal.

6. The signal generator according to claim 5, wherein the frequency of oscillation of the voltage controlled oscillation circuit is controlled by a FET functioning as a 10 voltage controlled variable capacitor.

7. The signal generator according to claim 5, wherein the integrated circuit is formed utilizing CMOS technology.

15 8. The signal generator according to claim 1, wherein the voltage controlled oscillation circuit employs field effect transistors (FET).

9. The signal generator of claim 6, wherein the voltage 20 controlled oscillation circuit has a balanced output.

10. The signal generator according to claim 1, further comprising a circuit board on which the voltage controlled oscillation circuit and the frequency divider circuit are 25 provided, wherein the control voltage input terminal and the frequency division signal output terminal are provided on end faces or an underside of the circuit board.

11. The signal generator according to claim 1, wherein the voltage controlled oscillator circuit further comprises a varactor diode in a resonant circuit coupled to a base of an oscillating transistor.

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12. The signal generator according to claim 11, wherein the frequency of oscillation of the voltage controlled oscillation circuit is controlled by the external voltage applied to the varactor diode.

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13. The signal generator unit of claim 1, wherein a frequency division ratio of the frequency divider circuit is controlled by an externally applied switching signal.

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14. The signal generator of claim 1, wherein a frequency division ratio of the frequency divided signal output is a whole number.

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15. The signal generator of claim 1, wherein a frequency division ratio of the frequency divided signal output is a fractional number.

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16. The signal generator of claim 1, further comprising a plurality of frequency divider circuits, one or more of the plurality of frequency divider circuits having a corresponding frequency divided signal output terminal.

17. The signal generator according to claim 16, wherein

the frequency divided signal output from at least two of the plurality of frequency divider circuits are available simultaneously.

5 18. The signal generator according to claim 16, wherein the plurality of frequency divider circuits are connected in series.

10 19. The signal generator according to claim 16, wherein at least one of the plurality of frequency divider circuits is a variable frequency divider circuit capable of switching a frequency division ratio.

15 20. The signal generator according to claim 1, wherein the frequency divided signal output has a frequency that is equal to or lower than the frequency of the oscillation signal.

20 21. A signal generator, comprising:  
means for generating an oscillation signal;  
means for frequency dividing the oscillation signal; and  
means for outputting a frequency divided signal,  
wherein a frequency of the oscillation signal is  
controlled by a first control means and a frequency division  
25 ratio of the frequency dividing means is controlled by a  
second control means.

22. The signal generator according to claim 21, wherein

the means for generating the oscillation signal comprises:

means for generating a balanced output oscillation signal;

means for converting the balanced output oscillation 5 signal to an unbalanced output oscillation signal; and

means for inputting the unbalanced output oscillation signal to the means for frequency dividing the oscillation signal.

10 23. The signal generator according to claim 21, wherein the means for frequency dividing the oscillation signal comprises:

means for cascading the means for frequency dividing, wherein at least one of the cascaded means for frequency 15 dividing is connected to the outputting means.

24. The signal generator according to claim 21, wherein the first control means is an externally applied control 20 voltage.

25. The signal generator according to claim 21, wherein the second control means is an externally applied switching signal.

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26. A method of generating a signal with a wide frequency range, comprising:

generating a voltage controlled oscillation signal

output;

frequency dividing the voltage controlled oscillation signal output;

controlling a frequency division ratio of the voltage controlled oscillation signal output; and  
5 outputting a frequency divided signal.

27. The method according to claim 26, generating a voltage controlled oscillation signal output comprising:

10 generating a balanced output oscillation signal;  
converting the balanced output oscillation signal to an unbalanced output oscillation signal;  
controlling a frequency of the balanced output oscillation signal.

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28. The method according to claim 27, wherein controlling the balanced output oscillation signal comprises applying an external voltage.

20 29. The method according to claim 26, wherein controlling the frequency division ratio comprises applying an external switching voltage.

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